NOTES

CHROMOSOME NUMBERS OF OLDENLANDIA CORYMBOSA (RUBIACEAE) FROM SOUTHEASTERN ASIA[1]

Although few tropical species have been studied cytogeographically over a wide distribution, the weedy rubiaceous annual *Oldenlandia corymbosa* L. is an exception. The species occurs from southern United States to central South America, Africa, southern Asia including the Malayan Archipelago to New Britain and Queensland. Lewis (Grana Palynol. **5:** 300-341, 1964) summarized the known chromosome numbers of plants from four continents in which three cytotypes (2*x*, 4*x*, 6*x*) based on $x = 9$ were found. The diploid race was reported in the New World, the tetraploid in India and all three races in Africa, viz. the 2*x* common in western Africa, the 4*x* widespread in eastern and central Africa and rare in the western region and the 6*x* race from one locality in coastal western Africa. Recently the presence of the diploid race in Brazil was confirmed (Lewis, Ann. Missouri Bot. Gard. **53:** 102, 1966) as well as the hexaploid race in coastal Sierra Leone (Harvey, Taxon **15:** 162, 1966).

Even though the area studied in 1964 was extensive, it did not nearly include the whole range of *O. corymbosa* and in particular a large gap in chromosomal data existed for southeastern Asia and adjacent areas. However, I found that diploidy vs. polyploidy was directly related to size, exine thickness and aperture number of the pollen and that from herbarium material alone the ploidy level of plants could be judged. On this basis additional regions were assessed for presumed chromosome numbers to the limit of available herbarium specimens. In southeastern Asia, for example, a large disjunct diploid race was postulated even though supporting data from actual chromosome counts were lacking; elsewhere, the pollen data extended somewhat the known limits of races already established on chromosome numbers.

Early in 1966 I received a generous collection of seeds from Mr. S. R. J. White then traveling through Indonesia to Singapore. This material from five localities has now flowered at the Missouri Botanical Garden and verifies the existence of the diploid race in that area.

Oldenlandia corymbosa L.: **n = 9.** INDONESIA. JAVA: Bandung, *Lewis 6702* (MO), 1 plant, 42 km N of Jogjakarta, Lewis 6699 (MO), 1 plant; TIMOR: Atambua, Lewis 6703 (MO), 2 plants. SINGAPORE. *Lewis 6695* (MO), 1 plant, *Lewis 6696* (MO), 2 plants. All voucher specimens are from greenhouse grown plants.

Not only do the counts for *O. corymbosa* emphasize the usefulness and reliability of pollen data in distinguishing diploids and polyploids and extending, positively the known range of the 2*x* cytotype from Brazil and Texas through Africa to eastern Indonesia, but they further illustrate an example in the tropics of incipient speciation which can be initiated and enhanced by macrochromosomal muta-

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tions (to 4x and 6x), a phenomenon which I call cytocatalytic evolution (Lewis, in press).—*Walter H. Lewis, Department of Botany, Washington University and Missouri Botanical Garden, St. Louis.*

CLAYTONIA CAROLINIANA VAR. SPATULIFOLIA (SALISBURY) LEWIS, STAT. NOV. (PORTULACACEAE)

Claytonia caroliniana Michx. (Fl. Bor.-Amer. **1:** 160, 1803) var. **spatulifolia** (Salisb.) W. H. Lewis, stat. nov., based on *C. spatulaefolia* Salisb., Parad. Lond. *pl. 71*, 1807.

a. Blades of paired cauline leaves ovate (S.A. Fig. 3-4) to elliptic (S.A. Fig. 38-39); widespread at lower elevations in mountains of eastern North America to Minnesota .....var. *caroliniana*

aa. Blades of paired cauline leaves narrowly elliptic (S.A. Fig. 1-2) to narrowly ovate (S.A. Fig. 36-37) and obovate (S.A. Fig. 45-46); highest elevations of the Appalachians .....var. *spatulifolia*

Michaux described *C. caroliniana* with short-oval (cauline) leaves scarcely ½″ long from material probably collected in eastern Tennessee, ESE of Johnsborough on route to Iron Mountain (cf. Thwaites, André Michaux's travels in Kentucky, 1793-96, *In Early Western Travels 1748-1846*, **3:** 98, 1904). The description of cauline leaves matches the specimen housed in the Michaux Herbarium (P) recently sketched for me by M. Gérard G. Aymonin and reproduced here (Fig. 1). This represents the widespread broad-leafed variety which varies from ovate to elliptic (Fig. 2). The second variety is characteristically found at higher elevations in eastern North America, particularly common above 1,000 m in the southern Appalachian Mountains; it is well illustrated by W. Hooker in plate 71 of the *Paradisus Londinensis* (Fig. 3) though the specific name chosen by Salisbury describes the subspatulate basal leaves. Figures 4-5 show other common leaf shapes of the var. *spatulifolia* which resemble those of *C. virginica* L. except that they are much shorter. Where this species and the var. *spatulifolia* coexist in Tennessee, North Carolina and West Virginia, I observed no intermediate plants and the two taxa invariably differed in chromosome number. At lower elevations the var. *caro-*

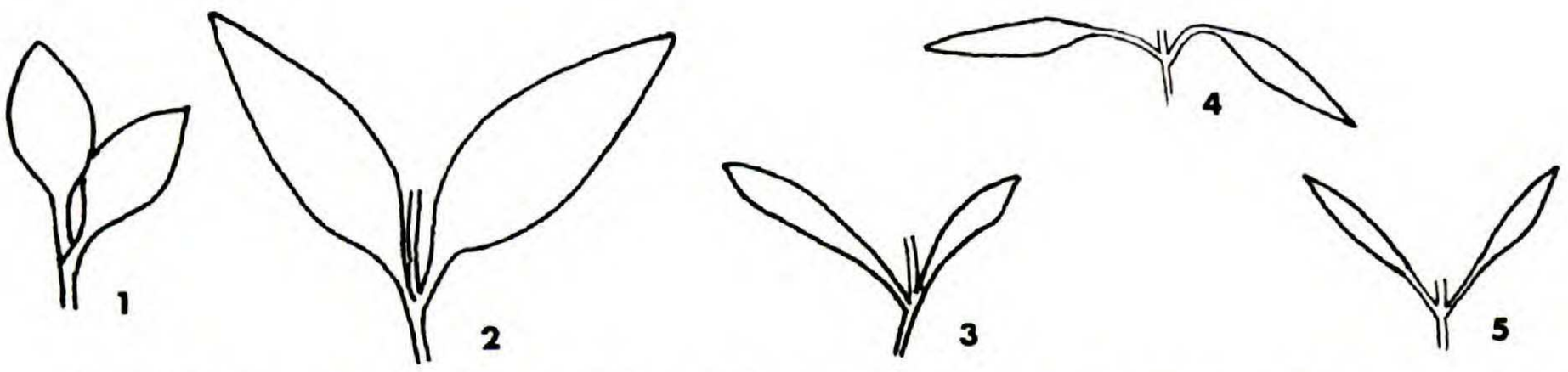

Fig. 1-5. Outline sketches (×1/2) of the single pair of cauline leaves of *C. caroliniana*. Fig. 1-2. Var. *caroliniana*. Fig. 1. *Michaux s.n.* (P). Fig. 2. *Soper & Fleischmann 6309*, Simcoe Co, Ontario (MO). Fig. 3-5. Var. *spatulifolia*. Fig. 3. *C. spatulifolia* by W. Hooker from Parad. Lond. *pl. 71*. Fig. 4. *Lewis 6675* (MO). Fig. 5. *Lewis 6660* (MO).